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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KALAM, ABUL	

ART UNIT	PAPER NUMBER
2814	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/666,399	LEUNG ET AL.	
	Examiner	Art Unit	
	Abul Kalam	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15-33 and 35-46* is/are pending in the application.

4a) Of the above claim(s) *1-12,20-33 and 35-41* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,15-19 and 42-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date 3/5/09, 3/17/09, 4/27/09, 6/26/09, 6/29/09, 7/20/09, 10/22/09.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 13, 15-19, and 42-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 13, the limitation of "injection or otherwise introducing curable coating material into said mold under ambient pressure," in lines 13-14, was not described in the specification. Note that the applicant does not state in anywhere in the specification that the introduction of the coating material into said mold is performed under ambient pressure. Claims 15-19 and 42-45 depend from claim 13 ,and thus, are also rejected for the same reasons.

Regarding claim 46, the limitation of "without a bias between said between either of said upper and lower sections and the features of said semiconductor devices," in lines 12-14, was not described in the specification. Note it is unclear what kind of "bias" the applicant is referring to since there is no description of the claimed limitation in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 46 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 46 recites the limitation "the features of said semiconductor devices" in lines 13-14. There is insufficient antecedent basis for this limitation in the claim. What "features" of the semiconductor devices is the applicant referring to?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 46, as best understood by the Office, is rejected under 35 U.S.C. 102(b) as being anticipated by Mitchell et al. (US 5,766,987; hereinafter, Mitchell).

Regarding claim 46, Mitchell discloses a method (Figs. 3-5) for coating a plurality of semiconductor devices, comprising:

providing a mold (10, 32, Fig. 3) with a formation cavity (90, Fig. 5) for holding a plurality of semiconductor devices (50), said formation cavity (90) at least partially defined by opposing rigid upper (32) and lower (10) sections of the mold (col. 8, lns. 16-18);

mounting the plurality of semiconductor devices (50, Fig. 3) within said mold formation cavity to the lower section (10) with a film (52 and 84) between said

semiconductor devices (50) and said upper and lower sections (32 and 10; col. 6, lns. 48-55), each of said semiconductor devices (50) being separately mounted in a pattern (col. 7, lns. 50-55) within the formation cavity (there is a space or opening between each device 50, Fig. 3), without a bias between said either of said upper and lower sections and the features of said semiconductor devices (col. 6, lns. 48-55; col. 7, lns. 50-55).

injecting or otherwise introducing curable coating material (51, Fig. 5; col. 8, lns. 59-63; col. 9, lns. 5-18) into said mold to fill said mold formation cavity (90, Fig. 5) and at least partially covering said semiconductor devices (50, Fig. 5) with coating material (51) and contacting said film (52, 84, Fig. 5; col. 8, lns. 61-62); and

curing or otherwise treating said coating material (51, Fig. 5; col. 9, lns. 33-45) so that said semiconductor devices (50, Fig. 3) are at least partially embedded in said cured coating material (51); and

removing said cured or treated coating material (51, Fig. 5) with said embedded semiconductor devices (50) from said formation cavity by releasing said film (52, col. 7, lns. 11-15) and said upper and lower sections (32 and 10) from said coating material and said semiconductor devices (50) leaving said coating material uncovered (col. 8, lns. 60-63; col. 9, lns. 48-53).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 13, 15-19, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell ('987; cited above) in view of Oosedo et al. (WO 2003/002661, hereinafter, Oosedo; US 2004/0031952 to Oosedo et al., which is a US publication equivalent to the international publication, will be used as a translation for the international application).

Regarding claim 13, Mitchell discloses a method (Figs. 3-5) for coating a plurality of semiconductor devices, comprising:

providing a mold (10, 32, Fig. 3), with a formation cavity (90, Fig. 5) for holding a plurality of semiconductor devices (50), said formation cavity (90) at least partially defined by opposing rigid upper (32) and lower (10) sections of the mold (col. 8, lns. 16-18);

mounting the plurality of semiconductor devices (50, Fig. 3) within said mold formation cavity to the lower section (10), with a film (52 and 84) between said semiconductor devices (50) and said upper and lower sections (32 and 10; col. 6, lns. 48-55), each of said semiconductor devices (50) being separately mounted in a pattern (col. 7, lns. 50-55) within the formation cavity;

injecting or otherwise introducing curable coating material (51, Fig. 5; col. 8, lns. 59-63; col. 9, lns. 5-18) into said mold to fill said mold formation cavity (90, Fig. 5) and at least partially covering said semiconductor devices (50, Fig. 5) with coating material (51) and contacting said film (52, 84, Fig. 5; col. 8, lns. 61-62); and

curing or otherwise treating said coating material (51, Fig. 5; col. 9, lns. 33-45) so that said semiconductor devices (50, Fig. 3) are at least partially embedded in said cured coating material (51); and

removing said cured or treated coating material (51, Fig. 5) with said embedded semiconductor devices (50) from said formation cavity by releasing said film (52, col. 7, lns. 11-15) and said upper and lower sections (32 and 10) from said coating material and said semiconductor devices (50) leaving said coating material uncovered (col. 8, lns. 60-63; col. 9, lns. 48-53).

Thus, Mitchell discloses all the limitations of the claim with the exception of disclosing injecting or otherwise introducing curable coating material into said mold under ambient pressure. However, Oosedo discloses methods of injecting curable coating material into a mold under both vacuum conditions and ambient conditions (atmospheric pressure, ¶ [0141] of US 2004/0031952). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mitchell with the teaching of Oosedo, to perform the injection molding under ambient pressure, because such a modification would have been considered a mere substitution of art recognized equivalents. See (MPEP 2144.06).

Substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. *In re Fount* 213 USPQ 532 (CCPA 1982); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *Graver Tank & Mfg. Co. Inc. v. Lindle Air Products Co.* 85 USPQ 328 (USSC 1950).

Regarding claim 15, Mitchell discloses the method further comprising separating said embedded semiconductor devices so that each is at least partially covered by a layer of said cured or treated coating material (col. 9, lns. 49-56).

Regarding claims 16, Mitchell discloses the method wherein said upper and lower sections (32 and 10, Fig. 4) provide opposing parallel surface, said semiconductor devices (50) arranged on one or both of said opposing surfaces (14, Fig. 3).

Regarding claims 17, Mitchell discloses the method claim wherein said curing or otherwise treating said coating material comprises one of the methods from the group comprising heat curing, optical curing or room temperature curing (col. 9, lns. 32-39).

Regarding claim 18, Mitchell discloses the method wherein the semiconductor devices are separated by dicing or scribe and break (col. 9, lns. 51-54).

Regarding claim 19, Mitchell discloses the method wherein the semiconductor devices are separated such that the layer of cured or otherwise treated coating material conforms to the shape of the semiconductor device (col. 9, lns. 38-56).

Regarding claim 44, Mitchell discloses wherein said plurality of semiconductor devices comprising contacts with one of said contacts (64, Fig. 4) covered by said film (84, Fig. 4).

Regarding claim 45, Mitchell discloses wherein said removing the cured or treated coating material with the embedded semiconductor devices by releasing said film leaves said contacts uncovered by said coating material (col. 9, lns. 49-51: it is implicit that once top cover layer 84 is removed, the contacts will be exposed).

5. Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchell (US '987; cited above) and Oosedo (WO '661), as applied to claim 13, and further in view of Soules et al. (US 6,252,254; hereinafter, Soules).

Regarding claim 42, Mitchell and Oosedo disclose all the limitations of the claim, as set forth above in claim 13, with the exception of explicitly disclosing wherein said semiconductor devices comprise light emitting diodes (LEDs). However, Soules discloses that solid state light sources, such as LEDs have been around for many years (col. 1, lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate LEDs into Mitchell's invention, because such elements are well known and conventional in the art. Furthermore, LED packages were commonly used, at the time of the invention, for applications such as displays and other lighting systems.

Regarding claim 43, Mitchell does not disclose wherein said curable coating material comprises a matrix material containing light conversion particles.

However, Soules teaches a method for coating LED devices, wherein a curable coating material comprises a matrix material (15, Fig. 2) containing light conversion particles (col. 3, lns. 49-56: "phosphors embedded in polymer"), and produces white

light output having pleasing characteristics (col. 3, lns. 34-36). Therefore, at the time the of the invention, it would have been obvious to one of ordinary skill in the art to use the encapsulating material containing light conversion particles, as taught of Soules, for intended use in applications such as display devices.

Response to Arguments

6. Applicant's arguments filed on September 8, 2009, have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 46, Applicant cites col. 8, lines 11-16 and col. 9, lines 18-23 of Mitchell, to argue that Mitchell does not teach the limitation wherein "each of said semiconductor devices being separately mounted in a pattern within said formation cavity, without a bias between said between either of said upper and lower section and the features of said semiconductor devices (emphasis added)." The argument is not persuasive. In the Mitchell reference, note that col. 6, lines 48-55 and col. 7, lines 50-55 describe the mounting step of the semiconductor devices, and there is no mention of a bias between either of said upper and lower sections and the features of said semiconductor devices during the mounting of the semiconductor devices. Furthermore, the portions of Mitchell cited by the applicant refer to the process after the mounting step. Also, in the portions of Mitchell cited by the applicant, there is no mention of a bias between either of said upper and lower sections and the features of said semiconductor devices. It is unclear as to what "bias" the applicant is referring to.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul Kalam whose telephone number is (571)272-8346..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K./
Examiner, Art Unit 2814

/Wael M Fahmy/
Supervisory Patent Examiner, Art Unit 2814